

## Features

- Lead free as standard
- RoHS compliant\*
- Telcordia GR1089 (Intra-Building)
- Protects two lines
- ESD protection 30 kV max.
- Low capacitance: 6 pF

## Applications

- T1/E1 & T3/E3 line cards
- ISDN U-Interface and S/T interface
- xDSL
- Ethernet - 10/100 Base T

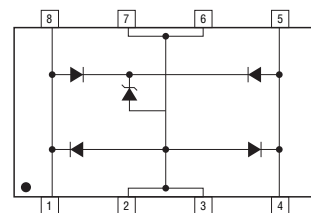
# CDNBS08-PLC03-6 Steering Diode/TVS Array Combo

## General Information

The markets of portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Steering Diode/Transient Voltage Suppressor Array combination diodes for surge and ESD protection applications in an 8 lead narrow body SOIC package size format.

The Bourns® device will meet IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements.



## Electrical Characteristics (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Min.	Nom.	Max.	Unit
Capacitance @ 0 V 1 MHz <sup>1</sup>	C <sub>J(SD)</sub>		16	20	pF
Capacitance @ 0 V 1 MHz <sup>2</sup>	C <sub>J(SD)</sub>		6	8	pF
Working Peak Voltage	V <sub>WM</sub>			6	V
Min. Breakdown Voltage @ 1 mA	V <sub>BR</sub>	6.8			V
Max. Clamping Voltage @ 8/20 μs V <sub>C</sub> @ I <sub>PP</sub> <sup>3,4</sup>	V <sub>C</sub>			20.0 V @ 100.0 A	V
Max. Leakage Current @ V <sub>WM</sub>	I <sub>D</sub>			25	μA
ESD Protection: IEC 61000-4-2 Contact Discharge Air Discharge	ESD	±8 ±15		±30 ±30	kV
Peak Pulse Power (t <sub>p</sub> = 8/20 μs) <sup>5</sup>	P <sub>PP</sub>			2000	W
EFT Protection: IEC 61000-4-4 @ 5/50 ns		40			A
Surge Protection: IEC 61000-4-5 @ 8/20 μs L4 (Line-Gnd) L4 (Line-Line)		95 48			A
Surge Protection: Telcordia GR1089 (Intra-Building) @ 2/10 μs		100			A

Notes:

1. Measured between I/O pins and ground (pin 1 or 2).
2. Measured between I/O pins (pins 1 to 4).
3. See Pulse Wave Form. For an 8/20 μs waveform, apply positive pulse from pin 1 or 8 to pin 2 or 3 (ground).
4. Measured between pin 1 or 8 to pin 2 or 3; pin 1 or 8 to pin 4 or 5.
5. See Peak Pulse Power vs. Pulse Time.

## Thermal Characteristics (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Min.	Nom.	Max.	Unit
Junction Temperature Range	T <sub>J</sub>	-55	+25	+150	°C
Storage Temperature Range	T <sub>STG</sub>	-55	+25	+150	°C



**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

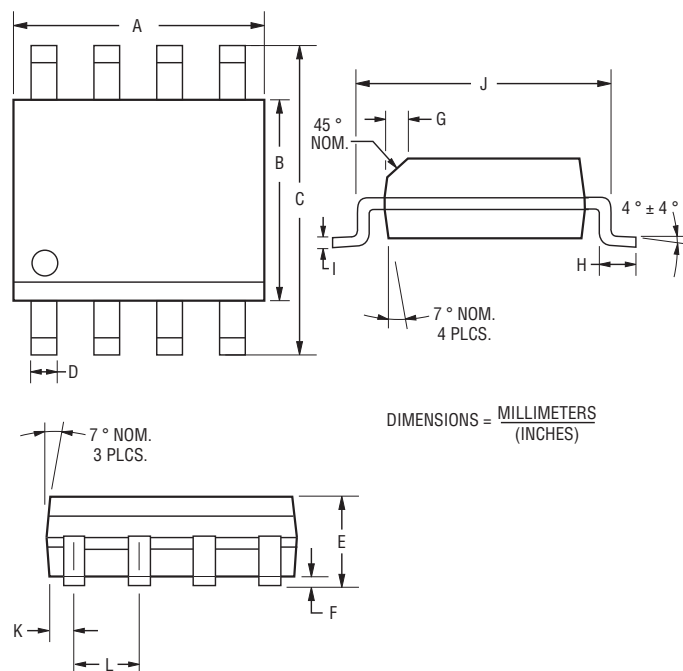
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## Product Dimensions

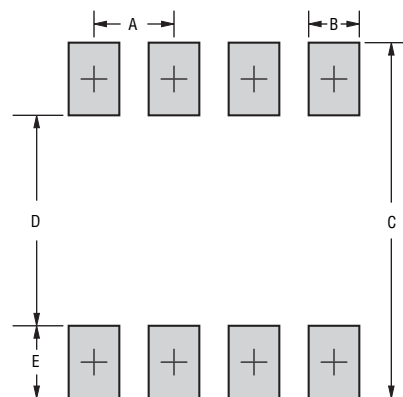
This is a molded JEDEC narrow body SO-8 package with lead free 100 % Sn plating on the lead frame. It weighs approximately 15 mg and has a flammability rating of UL 94V-0.



DIMENSIONS =  $\frac{\text{MILLIMETERS}}{(\text{INCHES})}$

Dimensions	
A	$\frac{4.80 - 5.00}{(0.189 - 0.197)}$
B	$\frac{3.81 - 4.00}{(0.150 - 0.157)}$
C	$\frac{5.80 - 6.20}{(0.228 \pm 0.244)}$
D	$\frac{0.36 - 0.51}{(0.014 - 0.020)}$
E	$\frac{1.35 - 1.75}{(0.053 - 0.069)}$
F	$\frac{0.102 - 0.203}{(0.004 - 0.008)}$
G	$\frac{0.25 - 0.50}{(0.010 - 0.020)}$
H	$\frac{0.51 - 1.12}{(0.020 - 0.044)}$
I	$\frac{0.190 - 0.229}{(0.0075 - 0.0090)}$
J	$\frac{4.60 - 5.21}{(0.181 - 0.205)}$
K	$\frac{0.28 - 0.79}{(0.011 - 0.031)}$
L	$\frac{1.27}{(0.050)}$

## Recommended Footprint



Dimensions	
A	$\frac{1.143 - 1.397}{(0.045 - 0.065)}$
B	$\frac{0.635 - 0.889}{(0.025 - 0.035)}$
C	$\frac{6.223}{(0.245)} \text{ Min.}$
D	$\frac{3.937 - 4.191}{(0.155 - 0.165)}$
E	$\frac{1.016 - 1.27}{(0.040 - 0.050)}$

## Typical Part Marking

CDNBS08-PLC03-6.....PBA

## How to Order

CD NBS08 - PLC03 - 6

Common Code \_\_\_\_\_  
 Chip Diode \_\_\_\_\_  
 Package \_\_\_\_\_  
 NBS08 = Narrow Body SOIC8 Package  
 Model \_\_\_\_\_  
 PLC03 = Model Number  
 Working Peak Voltage \_\_\_\_\_  
 6 = 6 V<sub>WM</sub> (Volts)

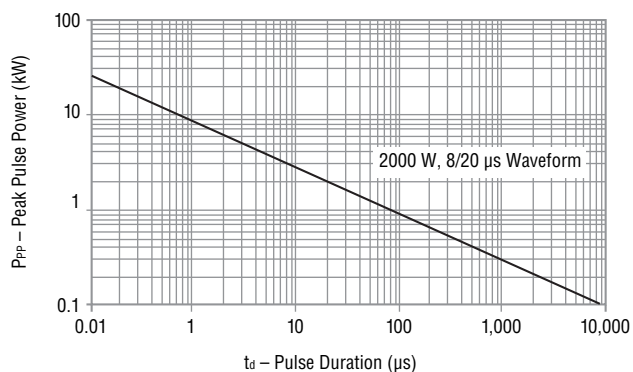
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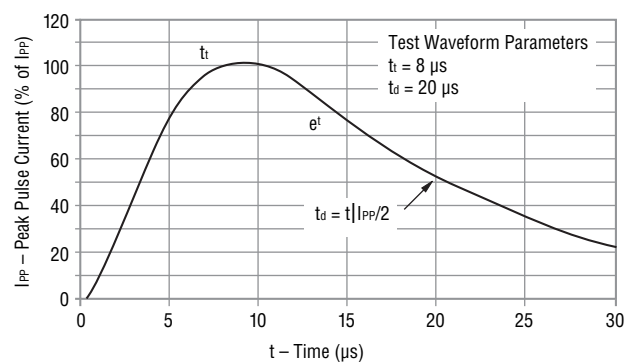
**BOURNS®**

## Performance Graphs

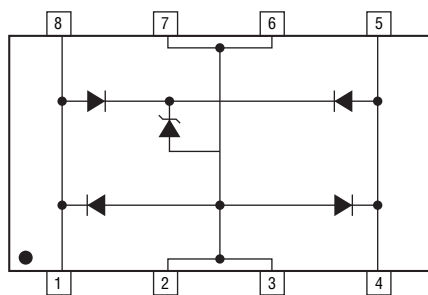
### Peak Pulse Power vs Pulse Time



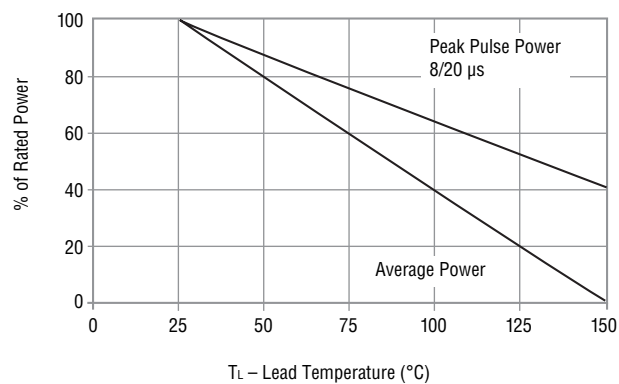
### Pulse Waveform



## Block Diagram



## Power Derating Curve



## Device Pinout

Pin	Function
1	I/O 1
2	GND
3	GND
4	I/O 2
5	I/O 2
6	GND
7	GND
8	I/O 1

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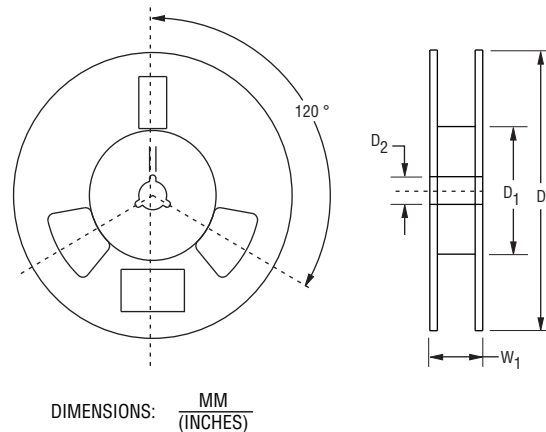
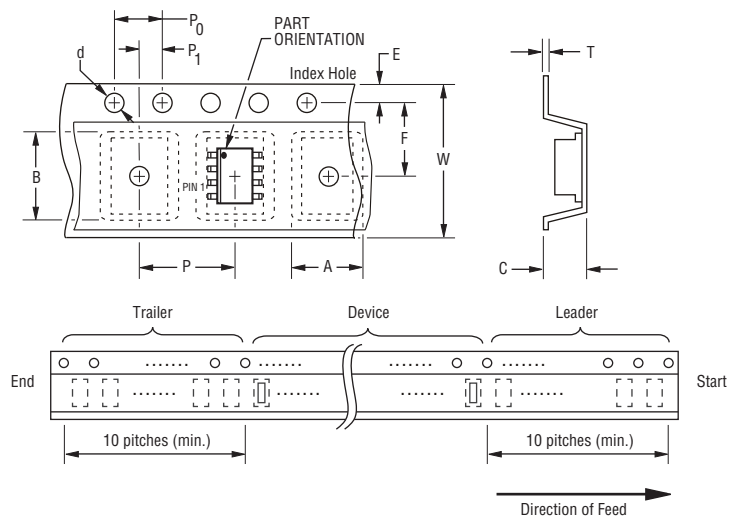
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## Packaging Information

The product is packaged in tape and reel format per EIA-481 standard.



Item	Symbol	NSOIC 8L
Carrier Width	A	$\frac{6.7 \pm 0.10}{(0.264 \pm 0.004)}$
Carrier Length	B	$\frac{5.5 \pm 0.10}{(0.217 \pm 0.004)}$
Carrier Depth	C	$\frac{2.10 \pm 0.10}{(0.083 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$
Reel Outside Diameter	D	$\frac{330}{(12.992)}$
Reel Inner Diameter	D <sub>1</sub>	$\frac{80.0}{(3.1500)}$ MIN.
Feed Hole Diameter	D <sub>2</sub>	$\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{8.00 \pm 0.10}{(0.315 \pm 0.004)}$
Sprocket Hole Pitch	P <sub>0</sub>	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P <sub>1</sub>	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
Overall Tape Thickness	T	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$
Tape Width	W	$\frac{12.00 \pm 0.20}{(0.472 \pm 0.008)}$
Reel Width	W <sub>1</sub>	$\frac{18.4}{(0.724)}$ MAX.
Quantity per Reel	--	2500

**BOURNS®**

**Asia-Pacific:**

Tel: +886-2 2562-4117

Email: asiacus@bourns.com

**Europe:**

Tel: +36 88 885 877

Email: eurocus@bourns.com

**The Americas:**

Tel: +1-951 781-5500

Email: americus@bourns.com

www.bourns.com

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